

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A structure, comprising:

a substrate; and

an antisoiling layer having a photocatalytic property bearing, formed on at least part
of its a surface of the substrate, an antisoiling layer having a photocatalytic property;

wherein:

the antisoiling layer comprises a titanium dioxide-based layer and an underlayer (UL)
immediately beneath the titanium dioxide-based layer;

the based on titanium dioxide (TiO_2)—based layer comprises titanium oxide at least
partly crystallized in its anatase form;

, wherein it includes, immediately beneath at least one TiO_2 layer, an the underlayer
(UL) having has a crystallographic structure that has-assisted in the crystallization of the
titanium oxide, by heteroepitaxial growth in the anatase form, of the TiO_2 titanium oxide-
based upper layer; and

the photocatalytic property having been acquired is obtained without any performing
a heating step.

Claim 2 (Currently Amended): The structure as claimed in claim 1, wherein the
underlayer (UL) ~~is based on~~ comprises a compound crystallized in a cubic or tetragonal
system and having a lattice cell dimension equal to that of TiO_2 crystallized in anatase form
to within $\pm 8\%$.

Claim 3 (Previously Presented): The structure as claimed in claim 1, wherein the
underlayer (UL) consists of ATiO_3 , A denoting barium or strontium.

Claim 4 (Previously Presented): The structure as claimed in claim 1, wherein the underlayer (UL) has a thickness of between 10 and 100 nm.

Claim 5 (Currently Amended): The structure as claimed in claim 1, wherein:
the substrate is in a form selected from the group consisting of ~~consists of~~ a sheet,
~~whether plane~~ having planar or with-curved faces, ~~of~~ monolithic or laminated glass, glass-ceramic or a hard thermoplastic, ~~or else consists of~~ and glass or glass-ceramic fibers; and
~~said sheets or said fibers having, where appropriate, received at least one other a~~
functional layer is optionally provided on the substrate ~~before application of~~ beneath the underlayer (UL).

Claim 6 (Currently Amended): The structure as claimed in claim 5, wherein:
the substrate ~~is made of~~ comprises glass or glass-ceramic, ~~wherein; and~~
at least one functional layer ~~subjaent to~~ is provided on the substrate beneath the underlayer (UL) ~~is a layer forming as~~ a barrier to the migration of alkali metals from the glass or glass-ceramic.

Claim 7 (Currently Amended): The structure as claimed in claim 5, wherein at least one functional layer ~~subjaent to~~ is provided on the substrate beneath the underlayer (UL), the at least one functional layer comprising ~~is a layer having an optical functionality, a thermal control layer or a conducting layer.~~

Claim 8 (Currently Amended): The structure as claimed in claim 5, wherein:
the substrate ~~is made of~~ comprises glass or glass-ceramic, ~~wherein; and~~

~~the substrate has received~~ a layer acting as a barrier to the migration of alkali metals from the glass or glass-ceramic, ~~and followed by~~ a monolayer, bilayer or trilayer having an optical functionality are formed on the substrate.

Claim 9 (Currently Amended): The structure as claimed in claim 1, wherein the TiO_2 ~~base~~ titanium oxide-based layer consists of TiO_2 alone or of TiO_2 doped with at least one dopant selected from the group consisting of N, ~~pentavalent cations~~, Fe, and Zr.

Claim 10 (Currently Amended): The structure as claimed in claim 1, wherein the TiO_2 ~~layer has been deposited~~ titanium oxide-based layer is formed by deposition at room temperature by a technique selected from the group consisting of vacuum sputtering, ~~where appropriate~~ magnetron sputtering and ~~and/or~~ ion-beam sputtering.

Claim 11 (Currently Amended): The structure as claimed in claim 1, wherein the underlayer (UL) ~~has been deposited~~ is formed by deposition at room temperature by a technique selected from the group consisting of vacuum sputtering, ~~where appropriate~~ magnetron sputtering and ~~and/or~~ ion-beam sputtering.

Claim 12 (Currently Amended): The structure as claimed in claim 3, wherein:

ATiO_3 ~~has been~~ is deposited at room temperature by a technique selected from the group consisting of vacuum sputtering, ~~where appropriate~~ magnetron sputtering and/or and ion-beam sputtering, using ceramic targets comprising at least one member selected from the group consisting of ATiO_3 , ATiO_{3-x} , wherein $0 < x < 3$, and ATi_5 ;

~~the supply being~~ deposition is carried out using a radiofrequency supply and ~~the an~~ atmosphere ~~in the sputtering chamber containing of only~~ only when ATiO_3 is used as

target, ~~or using the supply being a~~ DC or AC supply and ~~the reactive an~~ atmosphere in the ~~sputtering chamber containing of~~ oxygen and argon when ATi or ATiO_{3-x} is used as target;

the TiO₂ layer ~~having been~~ is deposited after the underlayer (UL) in a following step in the same sputtering chamber.

Claim 13 (Currently Amended): The structure as claimed in claim 1, wherein:
the structure ~~TiO₂ layer is coated with~~ comprises at least one overlayer formed over
the titanium oxide-based layer; and
the overlayer comprises of a material that does not disturb the antisoiling function of
the TiO₂-titanium oxide-based layer.

Claim 14 (Withdrawn): The application of ATiO₃ to the formation of a layer for assisting in the crystallization, in the anatase form by heteroepitaxial growth, of an optionally doped ATiO₂-based upper layer, A denoting barium or strontium.

Claim 15 (Withdrawn): A process for producing a structure as defined in claim 1, wherein an ATiO₃ underlayer, A denoting barium or strontium, is deposited on a substrate made of glass or glass-ceramic or hard polycarbonate-type plastic, of the sheet type, or on glass or glass-ceramic fibers, followed by an optionally doped TiO₂ layer, at least one overlayer of a material not disturbing the antisoiling function of the TiO₂ layer then possibly being deposited where appropriate on this TiO₂ layer.

Claim 16 (Withdrawn): The process as claimed in claim 15, wherein the ATiO₃ underlayer (UL) and the TiO₂ layer are deposited in succession at room temperature by vacuum sputtering, where appropriate magnetron and/or ion-beam sputtering, in the same

chamber, the targets used for depositing said underlayer selected from the group consisting of ATiO_3 , ATiO_{3-x} , wherein $0 < x \leq 3$, and ATi , the supply being a radiofrequency supply and the atmosphere in the sputtering chamber containing only argon when ATiO_3 is used as target, the supply being a DC or AC supply and the reactive atmosphere in the sputtering chamber containing oxygen and argon when ATi or ATiO_{3-x} is used as target; and the target used for depositing the TiO_2 being Ti or TiO_x , where $0 < x < 2$.

Claim 17 (Withdrawn): The process as claimed in claim 16, wherein no heat treatment step is carried out after the TiO_2 layer and, where appropriate, the overlayer(s) have been deposited.

Claim 18 (Withdrawn): The process as claimed in claim 15, wherein the coating of a glass or glass-ceramic substrate is carried out, wherein, before the underlayer (UL) has been applied, at least one layer forming a barrier to the migration of alkali metals present in the glass or glass-ceramic is deposited on the substrate, an annealing or toughening operation then possibly being carried out, after the TiO_2 layer and, where appropriate, the overlayer(s) have been deposited, at a temperature of between 250°C and 550°C in the annealing operation, and at a temperature of at least 600°C in the case of the toughening operation.

Claim 19 (Withdrawn): The process as claimed in claim 15, wherein before the ATiO_3 underlayer (UL) has been applied, at least one functional layer selected from the group consisting of layers having an optical functionality, thermal control layers and conducting layers is deposited, said functional layers being advantageously deposited by vacuum sputtering, where appropriate magnetron and/or ion-beam sputtering.

Claim 20 (Currently Amended): A single or multiple glazing ~~comprising, comprising~~
~~respectively, one or more than one~~ the structure as ~~defined in~~ of claim 1, wherein:

~~both the TiO₂-based antisoiling layer and its associated~~ the underlayer (UL) ~~being are~~
present ~~at on at least one of its an~~ external ~~faces~~ face of the glazing, ~~;~~ and

~~the a~~ a face of the glazing not provided with the antisoiling layer and the underlayer
(UL) ~~faces not having the TiO₂-based antisoiling layer and its associated underlayer possibly~~
~~including optionally comprises~~ at least one ~~other~~ additional functional layer.